

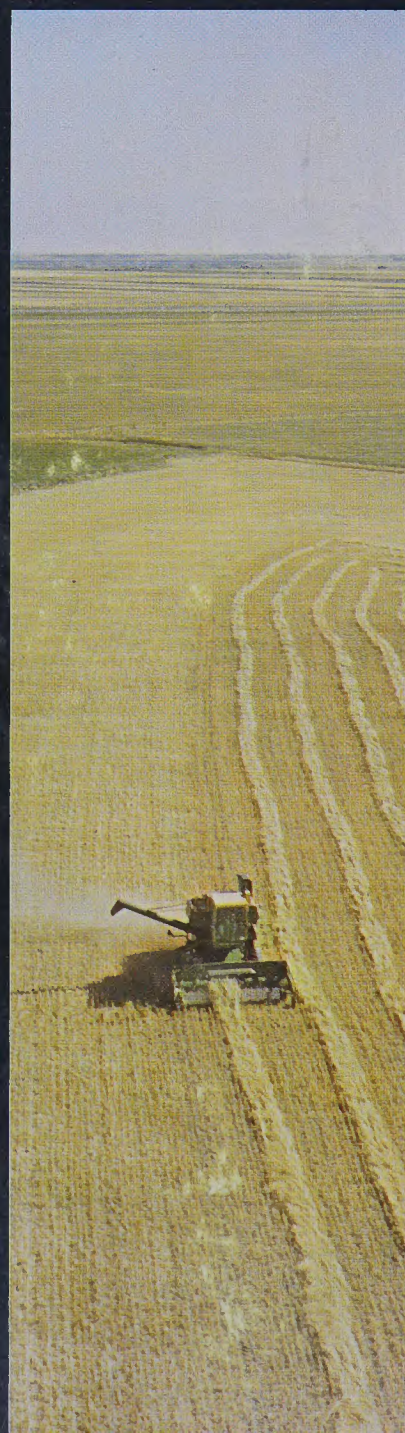
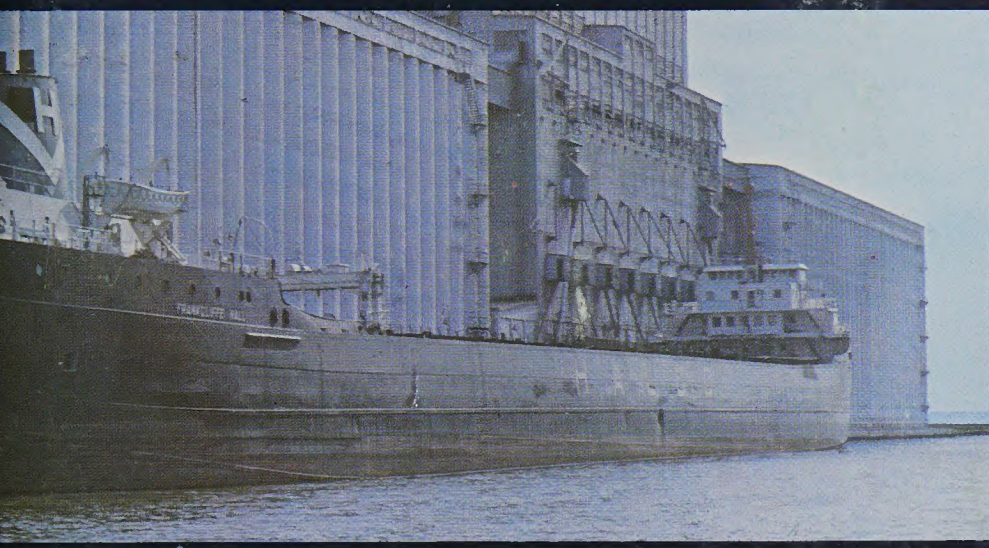
Gold River:

A CENTRE FOR LUMBERING

University Of Alberta



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People and Places in Canada

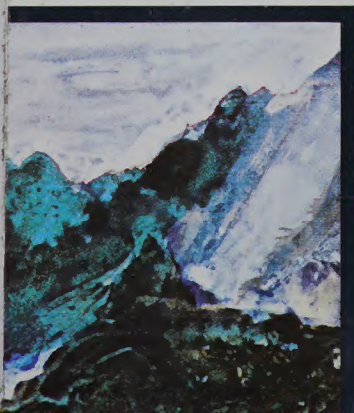
General Editor:

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Gold River: A Centre for Lumbering



A sample study of logging in
British Columbia

An Inductive Approach

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General Editor:

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Credits:

Frank Waters for many photographs.

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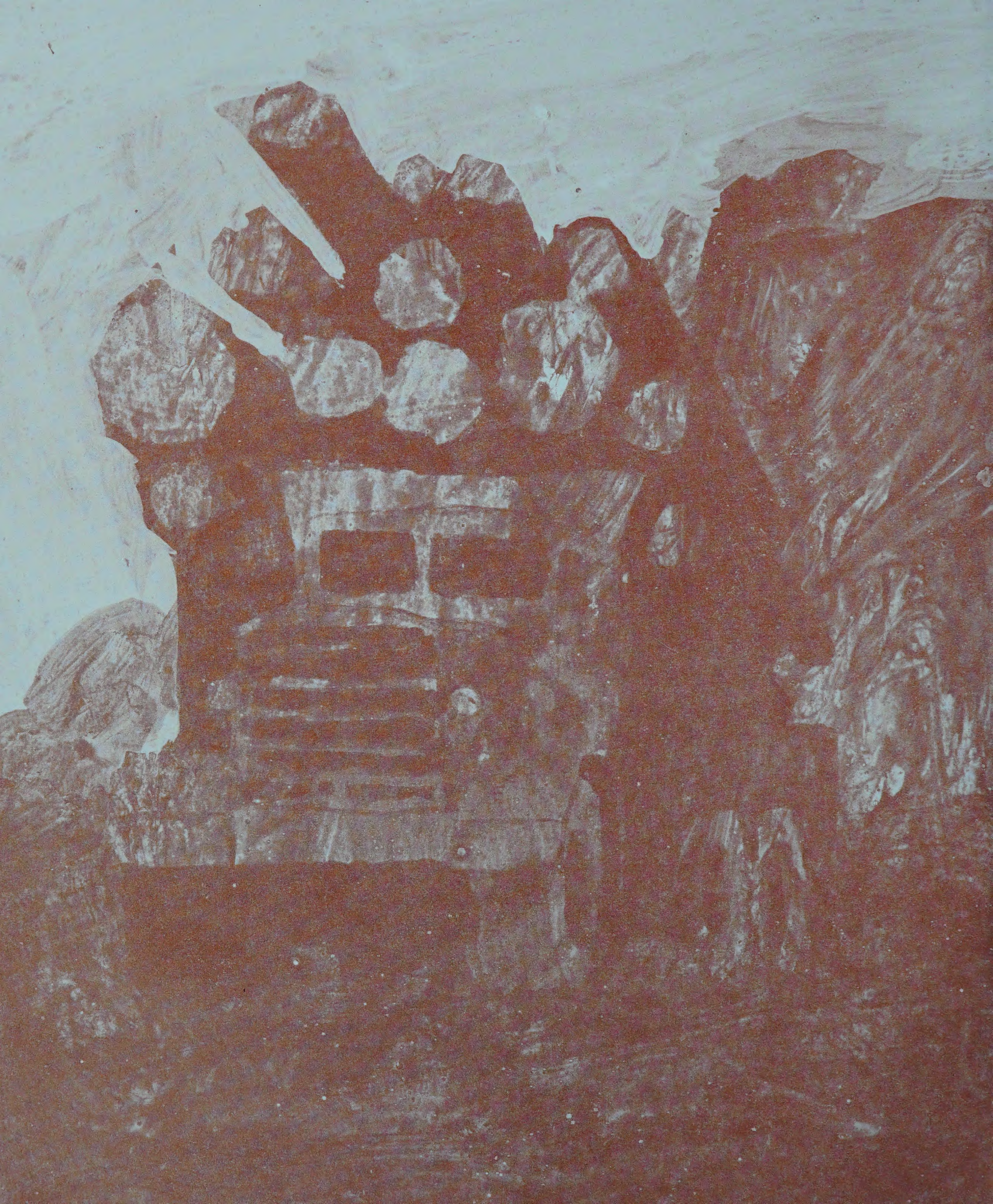
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Note to Teachers

Featured Concepts

Gold River, a Sample Study of Logging in British Columbia is intended to show the sequence of activities in the logging industry and to show a few of the consequences for the people who work in this industry and for the land in which the operation takes place. *Cooperation* and *co-ordination* of activities are important concepts as is the notion of change in technology without change in the essential nature of the operation. The notion of the "instant" single purpose town is introduced.



Introduction

In beginning our study of logging in British Columbia, let's try to imagine life in Gold River. Leona and Graham Stewart live in Gold River, and they probably live a life a little bit different from you. For example:

Exercise

1.
Did you ever live in a town where, beyond the town limits in all directions, you find real wilderness?
2.
Did you ever live in a town where everything is new? The houses are new, the shops are new, the schools are new, the streets are new?
3.
Have you ever gone into the forests to see the huge trees being cut?
4.
Have you ever been snowed in for two or three weeks?

5.
Have you ever seen the big logging trucks driving along the steep and narrow logging roads?
6.
Have you ever seen deer or bear in your town?
7.
Have you ever fed deer in your backyard?
8.
Have you ever flown in a float plane?
9.
Have you ever eaten a meal in a logging camp cook house?

Leona and Graham Stewart have done all these things. When you have read this book try to add to the list of things that Leona and Graham could probably do or see.

I: Meeting the Stewart Family

Leona and Graham live with their parents in Gold River, British Columbia. Mr. Stewart is an "area foreman" in the woods. He must understand the many operations in cutting trees and moving them out of the forest. In finding out about the town of Gold River, and what Mr. Stewart does you will learn a great deal about the logging industry.

Exercise

1.
Find British Columbia on Figure 2.
2.
What is the name of the island on the west coast of British Columbia?
3.
Look carefully at the inlets on this map. They closely resemble the fiords of Norway. What advantages could such inlets have for the logging industry?
4.
Look at Figure 3. Find Nootka Island on the west coast of Vancouver Island. Find Tahsis.
5.
Find the town of Gold River. How far by air is it from Gold River to Victoria? to Vancouver?

Now that you know where Gold River is in relation to the rest of Canada, let's find out more about what life in Gold River is like for the Stewarts. Look at Figure 5.

Figure 1

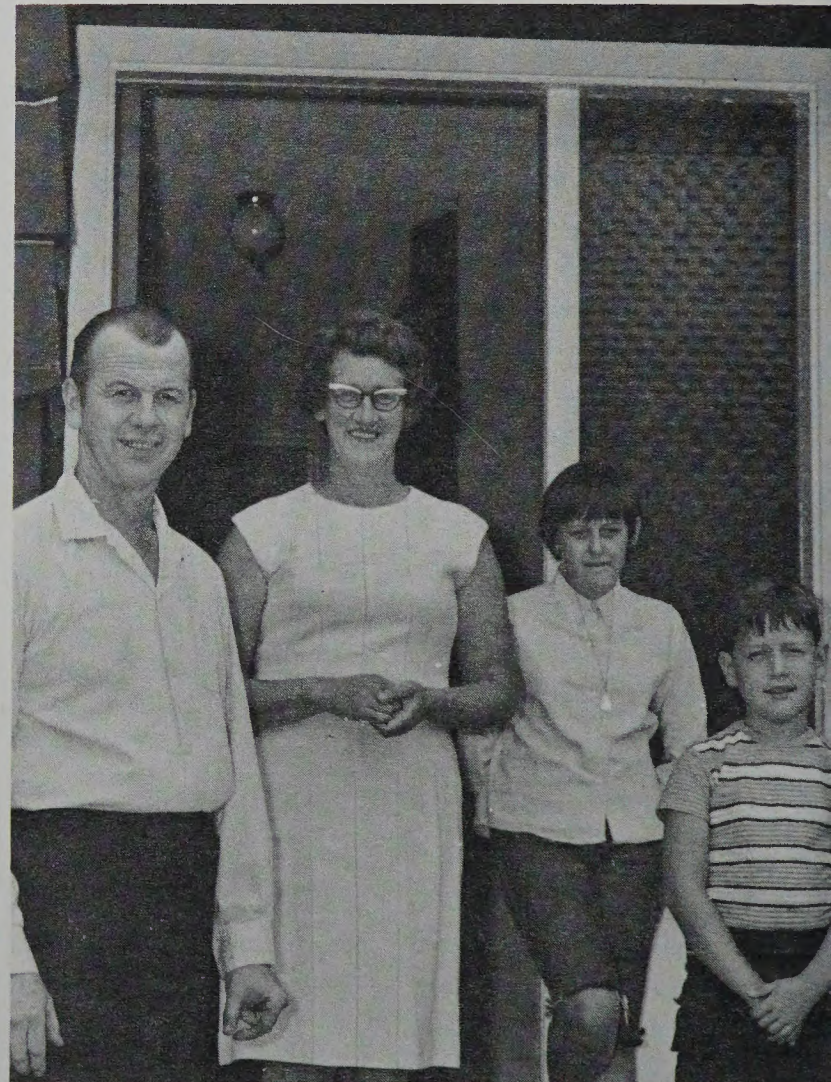


Figure 2

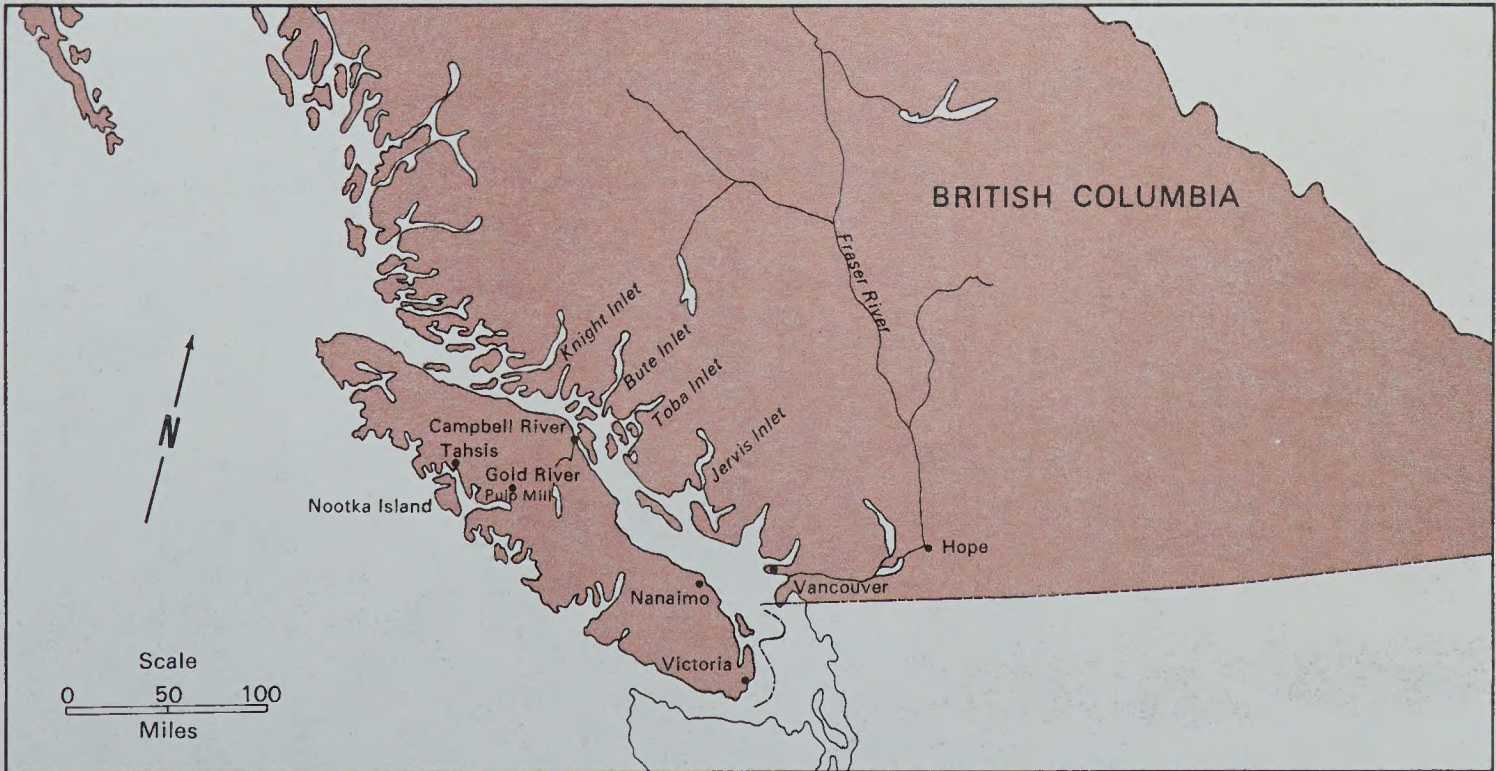


Figure 3

Exercise

1.

What natural resources surround the town of Gold River?

2.

Why would a town be built here?

3.

How old would you say the town is from the picture?

4.

Gold River is sometimes called an "instant town". Why do you think it is called that?

Figure 4



At the beginning of construction of Gold River the area was covered with forests. There were no roads, no houses, no electricity, and no logging on a large scale. Construction began, and almost “instantly” what was wilderness became a community with over 320 homes and more than 2,000 people. Study the picture of Gold River and make a list of all the things that had to be done to build this new town.

Look at Figure 5 (Gold River at Dusk), 6 (Gold River Elementary School), 7 (Gold River High School), 8i (some single-family homes in Gold River), and 8ii (an apartment block) and answer the following questions:

Exercise

1. *In what ways would Gold River be a pleasant place to live?*
2. *How many different types of accommodation can you spot?*
3. *Why do you think there are no television antennae or telephone wires visible?*

The Stewarts live in a new home with many conveniences. Mrs. Stewart shops in a modern shopping centre. Leona and Graham attend a modern school. However, there are some things that the Stewarts must plan for that city people often take for granted. For example, a dentist comes to Gold River only once a week. There is no hospital yet in Gold River. If people wear glasses they must go to Campbell River for them. Find Campbell River on Figure 3.

Exercise

1. *Does the town or city you live in or that is near you look like Gold River? How is it the same? How is it different?*
2. *Do the towns or cities near you have a long history?*
3. *Gold River is what we might call “a single purpose” town. Can you think of any other towns that exist for one reason? Can you think of some towns or cities that exist for several purposes? For what purposes does your town exist?*
4. *Can you guess how Gold River got its name? It is said that gold can still be found in the river in Gold River.*
5. *How has the formation of the land affected such things as the siting of the town and transportation at Gold River?*
6. *Look at Figure 4. Do you see the water near the top of the picture? This water is Muchalat Inlet. There is a pulp mill at that spot. Can you see how the road winds through the valley? This is a route that Mr. Stewart often takes. He also follows this route when the Stewart family goes fishing or boating. The distance from Gold River to the pulp mill is 9 miles. Why is Muchalat Inlet important to Gold River?*
7. *If you would like to compare Gold River with another single purpose town, study the film-strip called “Mining Town” (National Film Board).*

Figure 5 *Gold River at Dusk*



Figure 6 *Gold River Elementary School*



Figure 7 *Gold River High School*

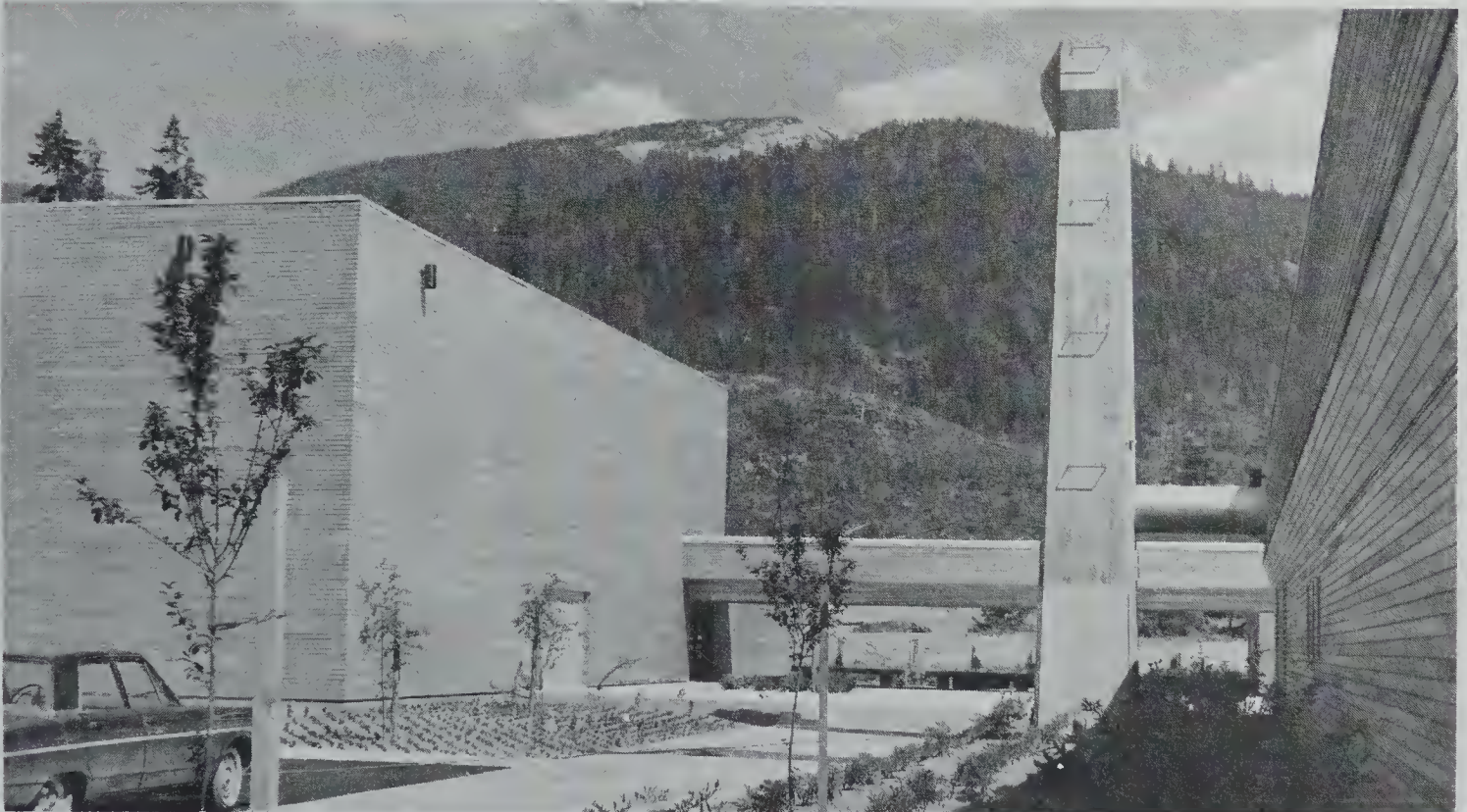




Figure 8i



Figure 8ii

Figures 8i and ii show two types of residences in Gold River, single-family dwellings and an apartment block.

Exercise

1.

Why is so much constructed out of wood?

Make a list of as many uses of wood in building construction as you can think of. How many uses has it in your home?

2.

How can you tell this is a recently settled area?

Nootka Sound: The Area Surrounding Gold River

On Figure 9 find Gold River and Nootka Sound. Nootka Sound is often called the "cradle" of British Columbia. Nearly 200 years ago Captain James Cook became the first white man to set foot on what is today known as British Columbia. If you visited Nootka Sound today you would find that it has changed very little. The rugged rocks of the coast are there, the forests are there, and the mountains are there. Study Figure 9 carefully.

Exercise

1.

Where did Captain Cook first enter British

Figure 9

Columbia? From what large body of water did he enter what is now British Columbia?

2.

Find these three locations:

(a)

The town of Gold River.

(b)

The pulp mill on Muchalat Inlet.

(c)

The sawmill at Tahsis on Tahsis Inlet.

Discuss some of the possible reasons for these locations. How are they related or connected to one another?

The trees of British Columbia are very large and grow in dense stands on the coast. In the interior region, the trees are shorter and more sparse. Although the forests of

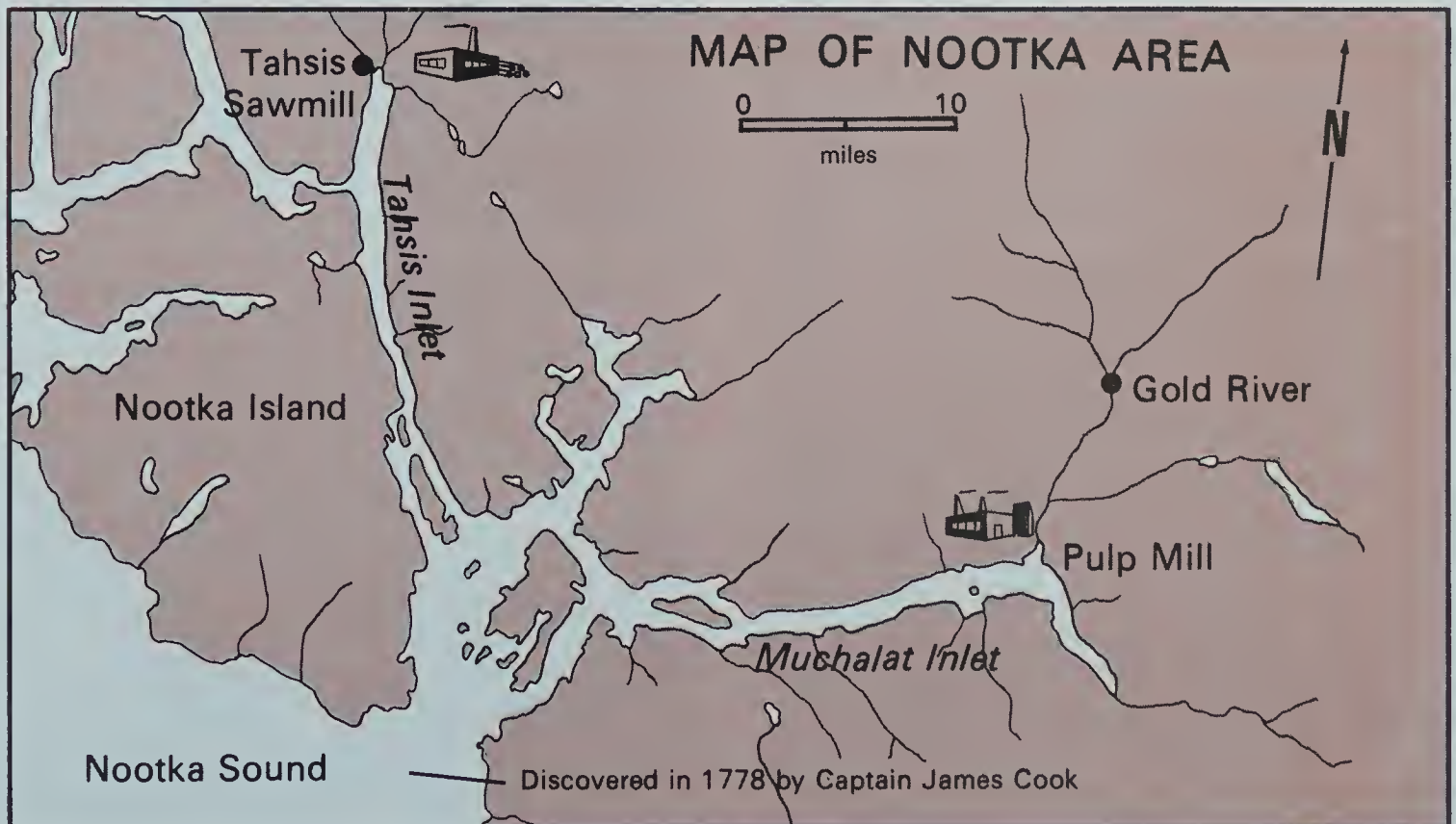


Figure 10 *Douglas Fir*

Left
Stand of Fir



Top right
Detail of bark



Bottom right
Detail of branch



Figure 11 *Western Hemlock*

Left
Stand of Hemlock

Top right
Detail of bark

Bottom right
Detail of branch

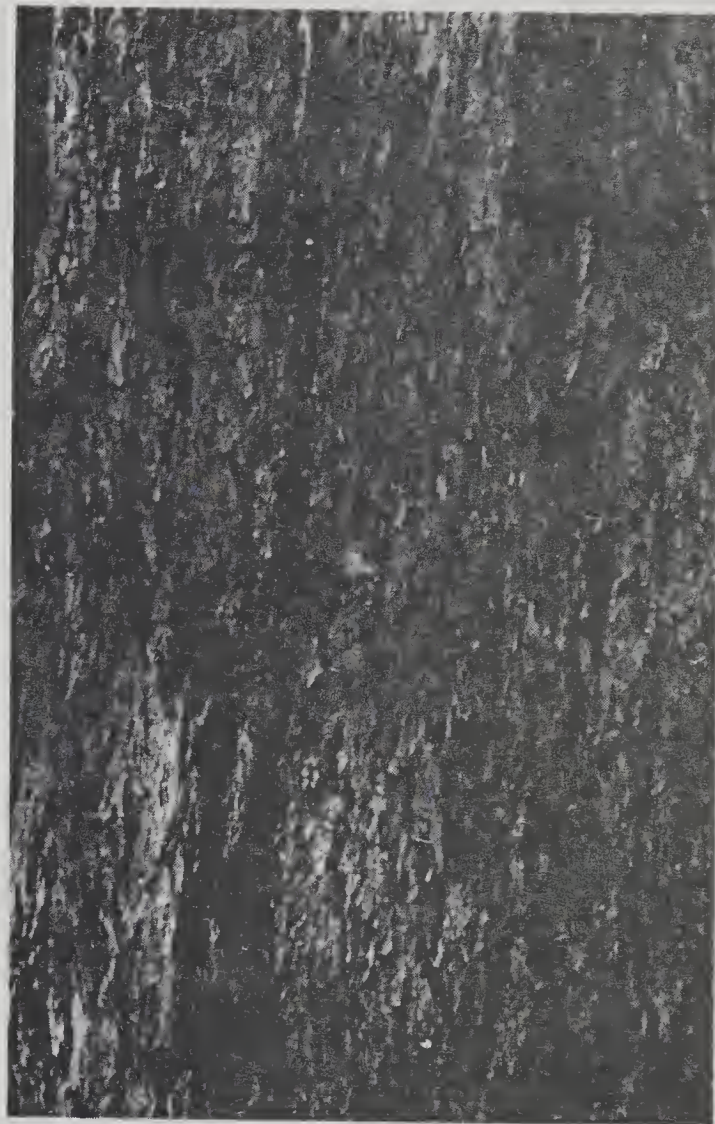
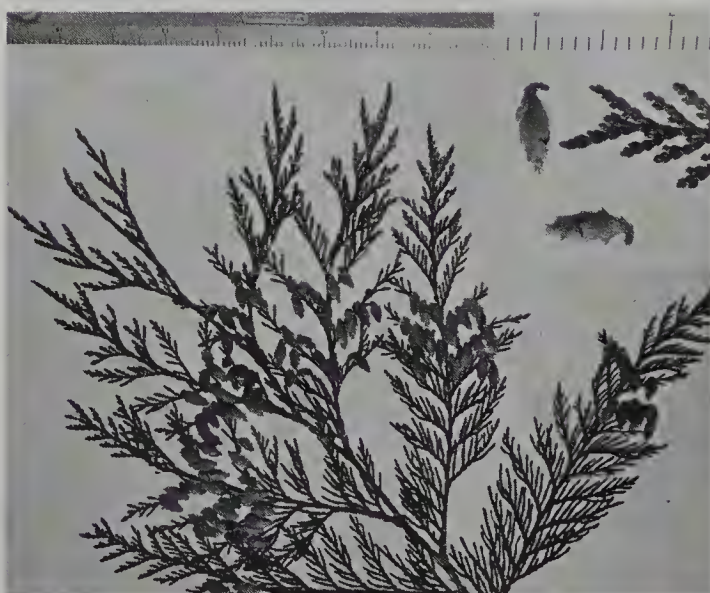


Figure 12 *Western Red Cedar*

Left
Stand of Cedar

Top right
Detail of bark

Bottom right
Detail of branch



British Columbia vary because of terrain and climate, in one way they are similar. The British Columbia forests are basically *softwoods*. These are mainly coniferous trees, such as evergreens, which retain their leaves or needles for more than one year. The other basic kind of tree, the *hardwoods* are mainly deciduous trees: they are usually broadleaved such as oak and maple, and they shed their foliage each year. If you are interested in different kinds of trees, you can find source material about them in your library.

Exercise

1.
After you think about what you know about forest cover, tell why Gold River was built in its present location.
2.
Does living near the forests have some advantages for Graham and Leona Stewart? Are there advantages for Mr. and Mrs. Stewart?
3.
What kinds of trees grow in your neighbourhood? Are they mostly coniferous? Are there some deciduous trees?

This unit is made up of four sections. How is each section related to the other? Review each of the parts, and then discuss how the parts are related to make up the IDEA of this unit: LOGGING AT GOLD RIVER.



Exercise

1.
Check your library to find other material about Nootka Sound and Captain Cook.
2.
Collect some specimens showing different kinds of trees. Try to find both softwoods and hardwoods. Perhaps you could mount leaves and twigs on pieces of cardboard for a display. You can collect pictures of trees, as well.
3.
Try to visit a lumber yard. Note the different kinds of wood products as well as the different sizes and shapes of lumber.
4.
Form a discussion group to discuss other uses of forests. Are forests just for making money?

II: From Forest to Forest Products

In Figure 13 you can see lumber stacked on the dock waiting to be carried to many different countries in the world. How many ways to move lumber can you see in the picture? What does the picture tell you about where the lumber came from?

When the lumber leaves this port it will be used in a number of ways. Logging, then, provides wood for many different purposes, for example, for shingles, for frames, for buildings, and for wood pulp which is used to make paper. In this book we will study logging, the process of finding trees, cutting them, and shipping them.

Exercise

1.

Try to follow the process of logging in Figure 13. Can you find the trees, the saw-mill, a ship that will be loaded with lumber, and even a number of uses for lumber? What is the dock made of? What are some of the buildings made of?

2.

Look around you. How many different uses of wood do you see? Remember that the pages of this book are made from wood.

As you learn about logging in Gold River, you will discover that though through the

years the logging operation has changed in some ways, it has stayed the same in other ways. What might be some likely changes?

Exercise

1.

Do you think modern logging uses horses to pull logs out of the forests? Why or why not?

2.

Do you think the men that cut the trees use axes and hand saws to cut the trees?

3.

Can you think of other ways that modern logging equipment differs from old equipment?

4.

Even if the equipment has changed, do you think that it is still necessary to find the trees, cut them, and move them? In this way is logging still the same?

5.

Can the men working in the forests live near their work? Do you think the loggers' families can be near them?

These are a few of the questions you should try to answer as you study logging. Perhaps you can think of other questions you would like to have answered.

Figure 13



III: The Phases in Logging

We are now ready to study the operation of logging itself. In unit II we talked about how some parts of the logging process remain the same while others change. Keep this in mind as we go on. The regions where logging takes place, the climate, the terrain, the equipment, the living conditions of the loggers — these change from place to place and from time to time. But the basic steps in logging stay the same. We can refer to these unchanging steps as the *idea* of logging.

Did you notice that the *idea* of logging contains *three* phases? These are finding the logs, cutting them, and moving them. We can study these three phases separately and then put them back together to see the *idea* of logging clearly.

What is happening in each picture in Figure 14? When you think about the three pictures together, what do you find?

The First Phase

The Beginning — Finding the Trees and Getting Ready to Cut Them

Before Mr. Stewart and his men can begin to work, a lot of information about the area

must be obtained. This is the first phase of logging. A crew of two or three men goes to work in getting detailed information. This process is called *timber cruising*.

Timber cruisers use measuring tapes, levels to find elevations of land, and a compass. They make a *topographic* map showing streams, rock bluffs, and so on. They also pick small plots as samples to get detailed information about the trees — in this small plot every tree is counted and measured to diameter, height, and age. Age is measured by boring a hole in the tree and taking out a piece of the trunk. In this way the growth rings can be counted. Finally, the tree is graded to its condition, and its species is recorded. In this way samples help to give knowledge about the entire area.

Figures 15 and 16 illustrate some of the information that is made available. The timber cruisers make rough notes in the forests, and maps like Figure 15 are prepared from these notes. Engineers and foresters can find most of the information they need by studying the maps carefully.

Exercise

1.

Find the lines that represent roads. Find the symbol for bluffs. Draw a sketch of a bluff.

Figure 14





MAP SHOWING DETAILED INFORMATION ABOUT THE AREA TO BE LOGGED

Figure 15

Can you find an area where there are only scrub trees?

2.

Locate the small circle near the middle of the map. In this circle you find the letters F and H, and the number 40+. The F stands for Fir, and the H stands for Hemlock. The 40+ tells the forester that in a one acre square in that area you will find over 40,000

units of Fir and Hemlock. This is one of the samples mentioned earlier. Find an area where you would find 10,000+ units of Fir, Cedar and Hemlock.

3.

If the lines on the contour map are close together will the hillside or mountain be steep or gently sloping? What if the contour lines are far apart?

4.

Now study the map, and the contour profile in Figure 16 and find the line AB. The profile shows what the contours on the map represent — the elevation. You can tell how steep the mountain side is by learning to read the contours and picturing them as a profile. What two numbers on line AB show the top of this small hill?

After timber cruising the next step in getting ready to cut the trees is that of planning the roads and constructing them. Why is this often a very big operation? Why do the loggers need good roads? Ditches must be made, bridges have to be built.

Figures 17 and 18 shows some of the difficulties found in building the roads. What are these difficulties?

In addition to the engineering and construction work we have been talking about, foresters must also be busy. These men make a *logging plan*. In this plan the *settings* and *landings* are picked. A *setting* is the area where logs are cut. A *landing* is an assembly point for the logs cut within the setting. After logs are cut, they are *yarded* for loading on trucks that will haul them away (see Figure 33). Can you make a match stick model to show the meaning of these words?

Figure 16

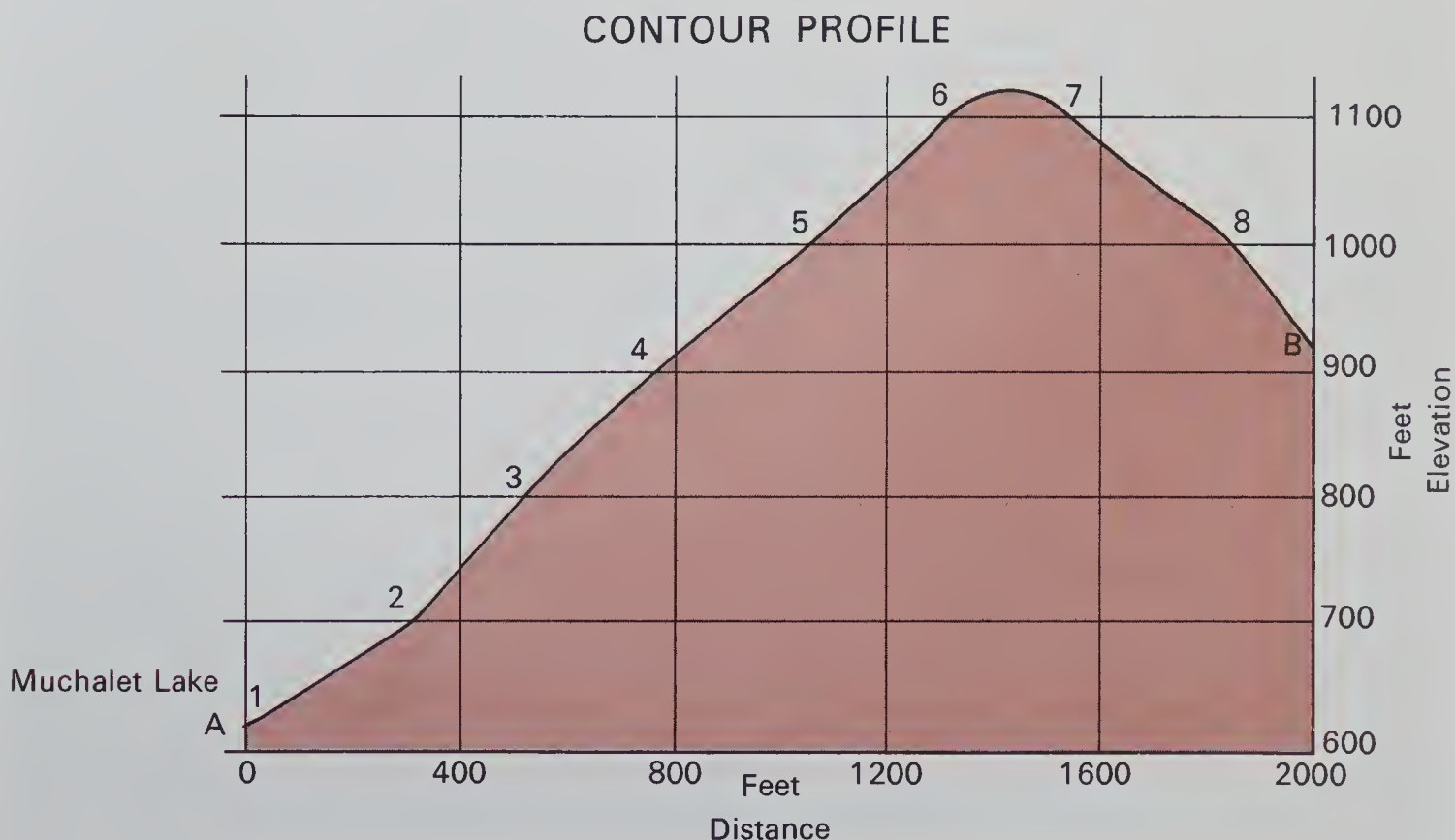


Figure 17

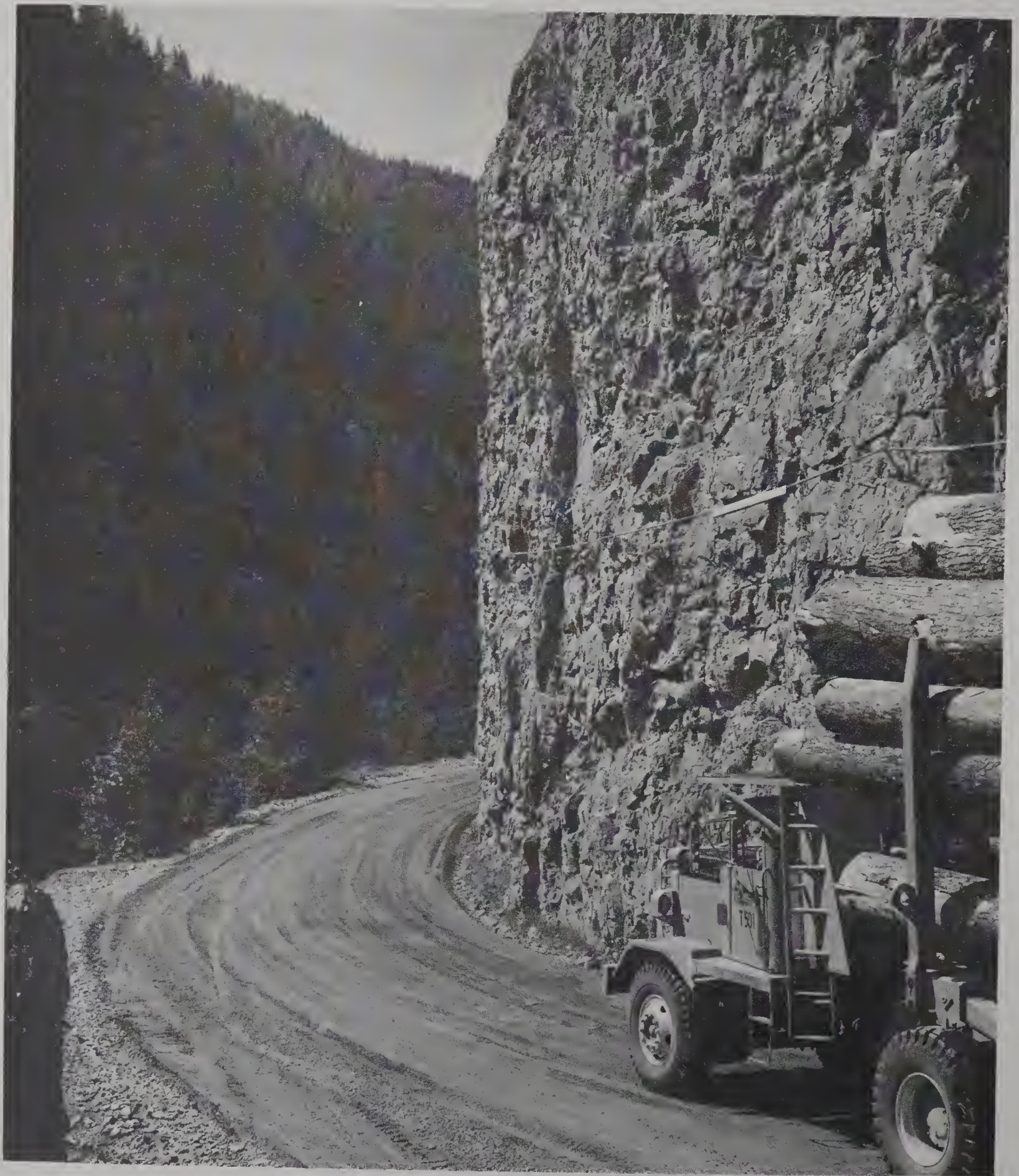
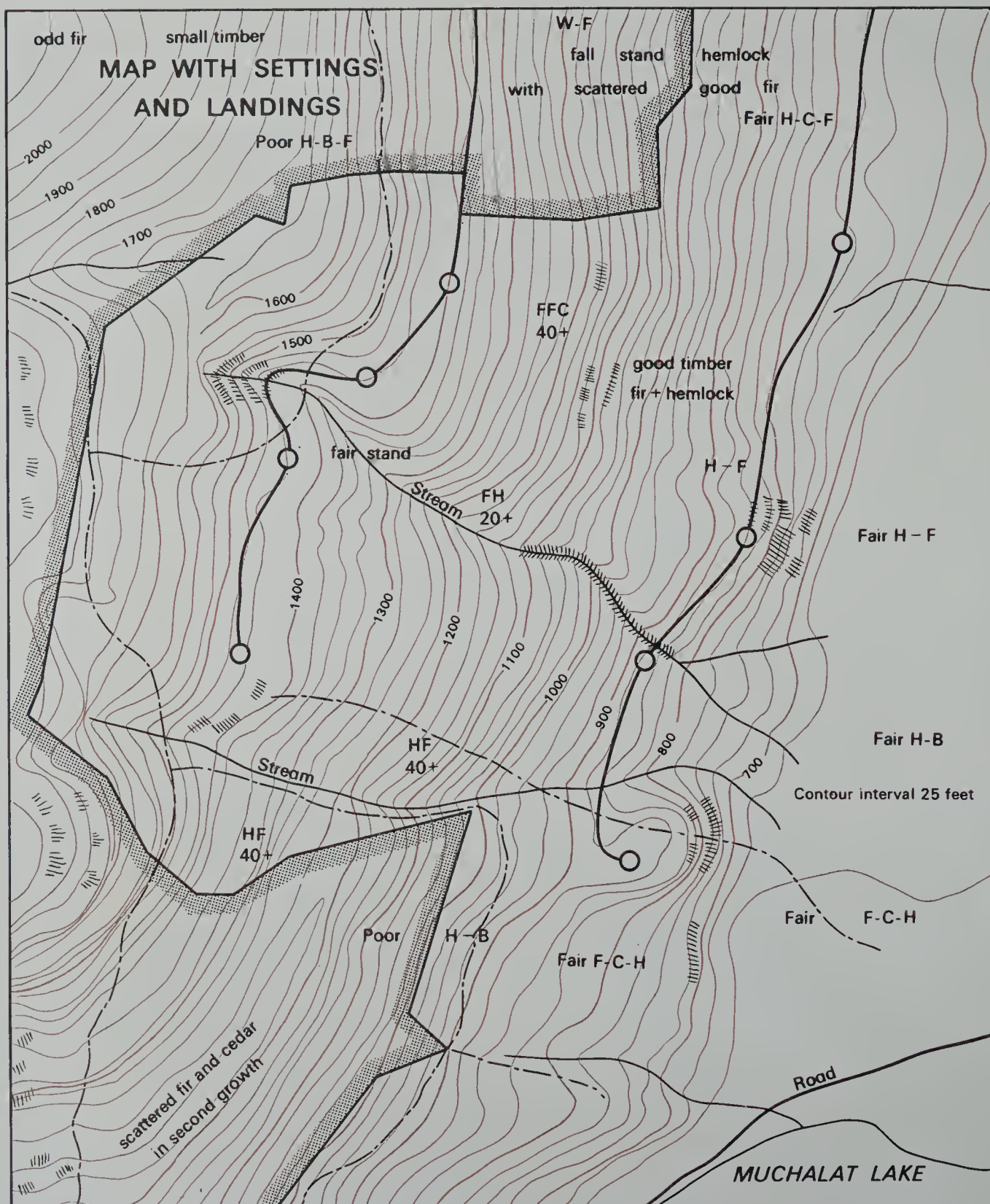


Figure 18



Figure 19



Study Figure 19. See the small circles drawn on roads? These are landing sites, and the area right around them is the *setting*.

Exercise

1.
Do the roads follow the contour of the ground? Why?
2.
Where would a bridge have to be constructed?
3.
The symbols on this map are the same as those used in Figure 15. Find the roads, bluffs, a gentle slope, a steep slope, a flat area.

4.
Find an area with good timber. What kinds of trees are found here?
5.
In Figure 20, can you find a view of a logging road?
6.
Get other maps, for example, a road map of your area or a topographic sheet. Compare the information on the maps with what you already know about your area. Discover how many kinds of information appear on different maps.
7.
Organize a project for map study. See if you can find out how maps are made.

Figure 20



Summary

We have studied the first phase of the logging process. We have seen how men in logging must go from a very general knowledge of a forest to information about individual trees. All along the way, more and more detail must be known, so that what began as a forest without roads or logging plans becomes a part of the forest where the kinds of trees, their quality and quantity are known, where roads are built, and landings are selected. When all the bits of information are collected and put together a whole area is learned about.



Figure 21

The Second Phase

Getting the Yarding Ready, Falling and Hauling the Logs into the Landing

As you can see from Figure 21, Mr. Stewart now enters the scene. He has been watching the construction of roads and studying the logging plans, and now he must supervise the actual setting up of equipment at the landing. Can you remember what is done at landings?

A very important part of Mr. Stewart's work is keeping in constant communication with other people. Mr. Stewart must keep more than one landing operating at the same time. This is why he needs the latest communication equipment. What can you see him using in Figure 21 to talk to men at another landing? Often equipment breaks down, and Mr. Stewart must move quickly

to get it repaired. At the landing we find several men at work. If you listened to these men talk you would find that they use names very unfamiliar to us. Here are some examples: *hook tender* is in charge of the yarding and reports to Mr. Stewart; *rigging slinger*, in charge of the *chokermen* reports to the hook tender; *yarding engineer* runs the yarder and a *chaser* unhooks the logs when they are pulled into the landing by the yarder; a *grapple operator* loads logs on the trucks. As you can see, Mr. Stewart is very busy keeping all of these activities going in one smoothly running operation. This is called *co-ordinating*. What other jobs can you think of that need co-ordination?

Falling and Bucking

One part of Mr. Stewart's job involves working with the *fallers*. As the name suggests,



Figure 22

these are the men who actually cut the trees. Falling is an important part of the whole operation. Let us look in detail at this part.

The faller does two things: he falls the trees and bucks them. Cutting to a certain length is called *bucking*. The lengths can be from 20 feet to 40 feet long.

The timber cruisers work as a crew and so also do the men at the landing. The same is true for the men cutting trees. There is a man whose job is called *bull buck* who is in charge of the cutting operation. The bull buck supervises the fallers and the *scalers*. Scalers measure the trees. The bull buck works closely with Mr. Stewart. Why is teamwork so important?

We talked to an experienced faller, Mr. Robert Bell. As we talk to Mr. Bell, try to follow the logging steps in Figures 22-27.

Question: What should the faller consider in sizing up the tree?

Answer: Well, there are several things. The terrain, the wind, the way the trees might be leaning, and the presence of other trees that might be in the way or be injured by the falling tree.

Question: How do you make an undercut?

Answer: We saw through the trunk just a bit to determine how the tree leans.

Question: What is a backcut?

Answer: The backcut is a cut through the other side of the trunk from where we made the undercut. This is the falling cut.

Question: After falling the trees, what happens next?

Answer: The buckler comes and cuts off the branches. Then he measures forty foot



Figure 23 *Making the backcut*

Figure 24 *Making the undercut*





Figure 25 *Tree falling*



Figure 26 *Measuring lengths*

Figure 27 Cutting lengths



lengths along the trunk and cuts the trees to these lengths.

Question: Do you travel back and forth to your home every day like Mr. Stewart?

Answer: No, I stay at the camp and go home to *Nanaimo* on weekends.

Question: When the tree is falling do you really yell *Timberrr!*

Answer: No, we are usually working too far apart for there to be any danger of trees falling on someone.

Question: Have you seen any big changes in logging in your lifetime?

Answer: Oh yes, many. We only use power saws now. We used to work in pairs with a two-man saw. Now a faller works alone.

Figure 28 Measuring the width



Figure 29 Recording on a tally sheet



Question: Where do you live in the logging camp?

Answer: In the marshalling area — we have just about everything important over there — the bunkhouse, First Aid equipment, the cookhouse, the company offices, and a repair shed for machinery.

Scaling

Working along with the bull bucker and the fallers in the woods we find a scaler. He follows the fallers and “scales”, that is, he measures the logs to find the quantity of lumber cut. The scaler measures the *volume* of good wood cut by the fallers, and he records this in a *tally sheet*.

The scaler does not have to stop and do the arithmetic for every log. He can read the number of board feet off his scaling stick. This stick has three kinds of information on it. It has the diameter marked on one edge, the lengths on another, and then the number of board feet contained in a log of a given length. For example, the scaler takes his scaling stick and holds it so that he can read the diameter of the log. He then looks at his stick under the correct length and reads off the number of board feet.

The measure that the scaler uses is called a *board foot*. Figure 30 illustrates the volume measure — board foot.

A board foot is a piece of wood that measures 1 foot square and 1 inch thick. Of course, this volume could come in different shapes. For example, the volume could be thought of as 2 inches thick, 6 inches wide, and 12 inches long. The amount of wood would be the same in both cases. What the

scaler must do, then, is figure how many units of this size is in each log. He must consider the diameter of the log and the length of it.

Figure out the board feet in Figures 31 and 32.

Yarding

While the fallers are in the woods around the setting, Mr. Stewart must get the landing ready. A big part of this job involves moving and setting up the machine that will bring the logs to the landing. This machine is sometimes called a *mobile spar* or *yarder*. The operator drives this huge machine from landing to landing. Look back at the map in Figure 19 and locate the landings. The oper-

ator must move to the next landing when the logs have been hauled away from the one on which he is working.

We have followed the progress of Mr. Stewart as he set up the landing, and we have studied the fallers' job and the scalers' work. The roads have been built, the landing is ready, and the trees have been felled, bucked, and scaled. It is now time to look at the process of getting the logs to the landing site.

This is another one of the things that has changed in modern logging. In earlier logging it was common to find horses being used to haul the logs to the landing. Today, powerful diesel and gasoline engines are used.

Figure 33 shows the most common rigging used on yarders in the Coastal Region.

Figure 30

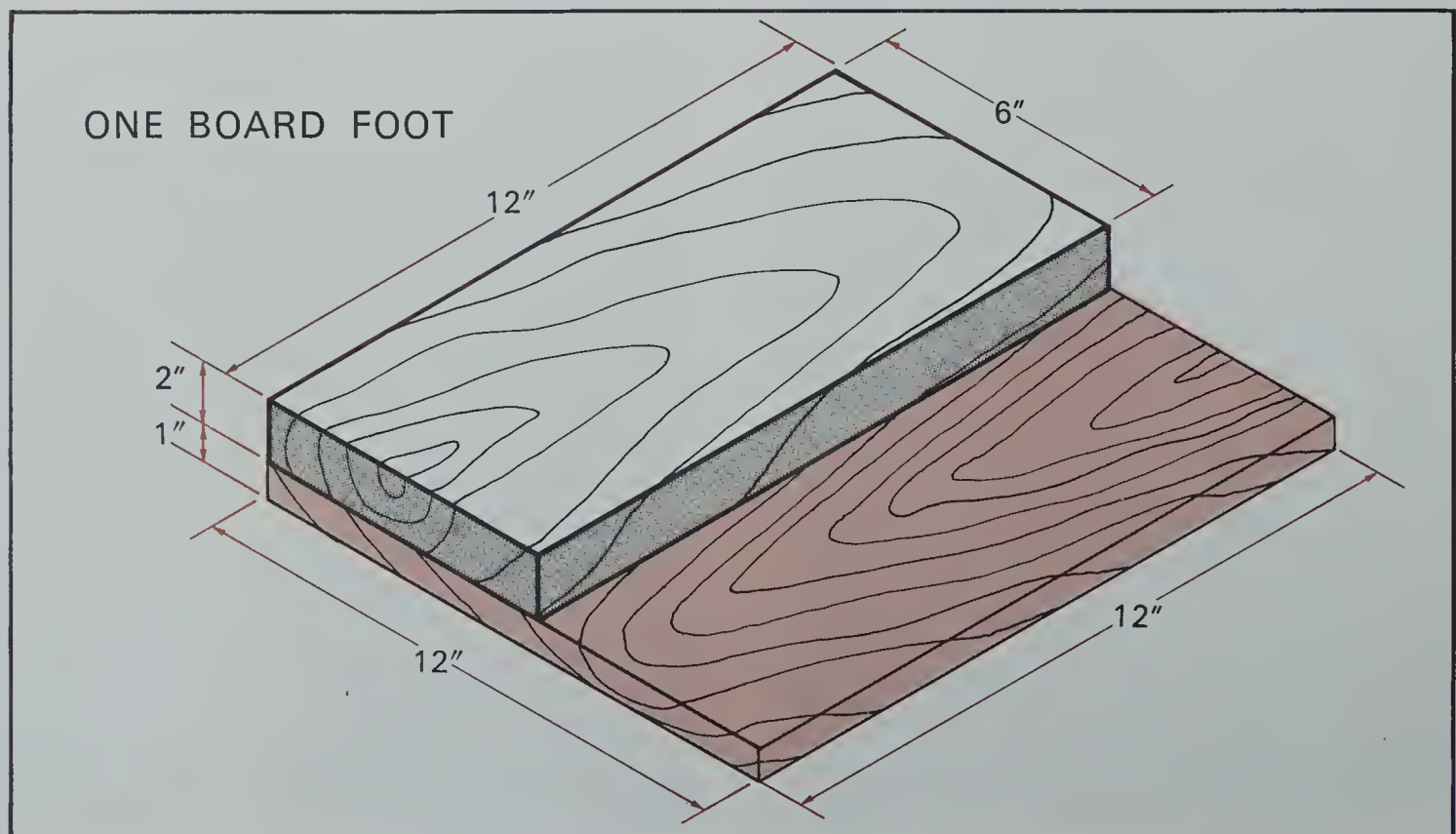




Figure 31

It is called *high-lead yarding*. One metal spar is used. It has a main line and a haul-back line. Find these in Figure 34. The main line and haul-back line are rigged to a stump or *back spar* that is 600 to 800 feet out from the yarder. By operating his machine, the yarder can pull logs in on the main line. In this way the logs are pulled in over any obstacles beneath them. When the logs arrive at the landing they are freed from the line and the *chokers* go back out for another

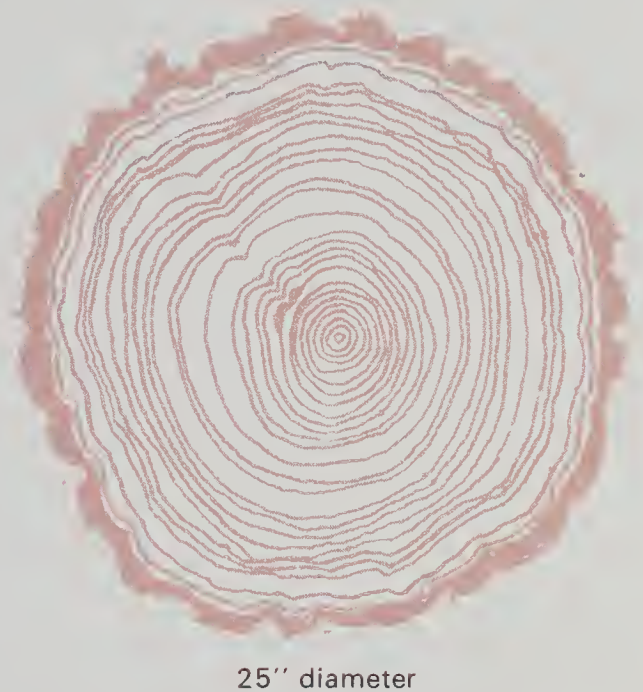


Figure 32

load. Usually three logs are pulled in at the same time.

The series of pictures, Figures 35-39, give you an idea of what the chokermen do. If you look carefully at Figure 38 you will see the radio-type signal used to let the yarder know all is ready. The signal is on the hook tender's belt. He simply pushes a button with his left hand and a signal sounds. The sound of this signal is as common in the woods as the sound of power saws.

When the trees have been pulled to the

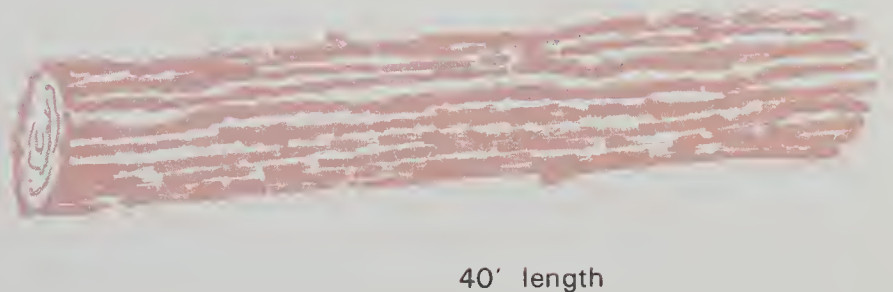
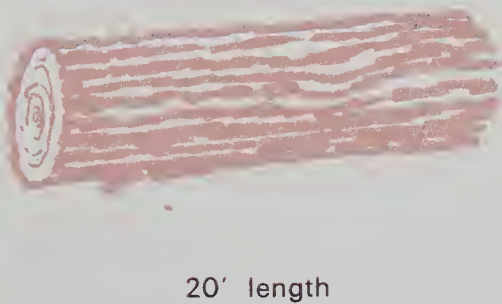


Figure 33



Figure 34

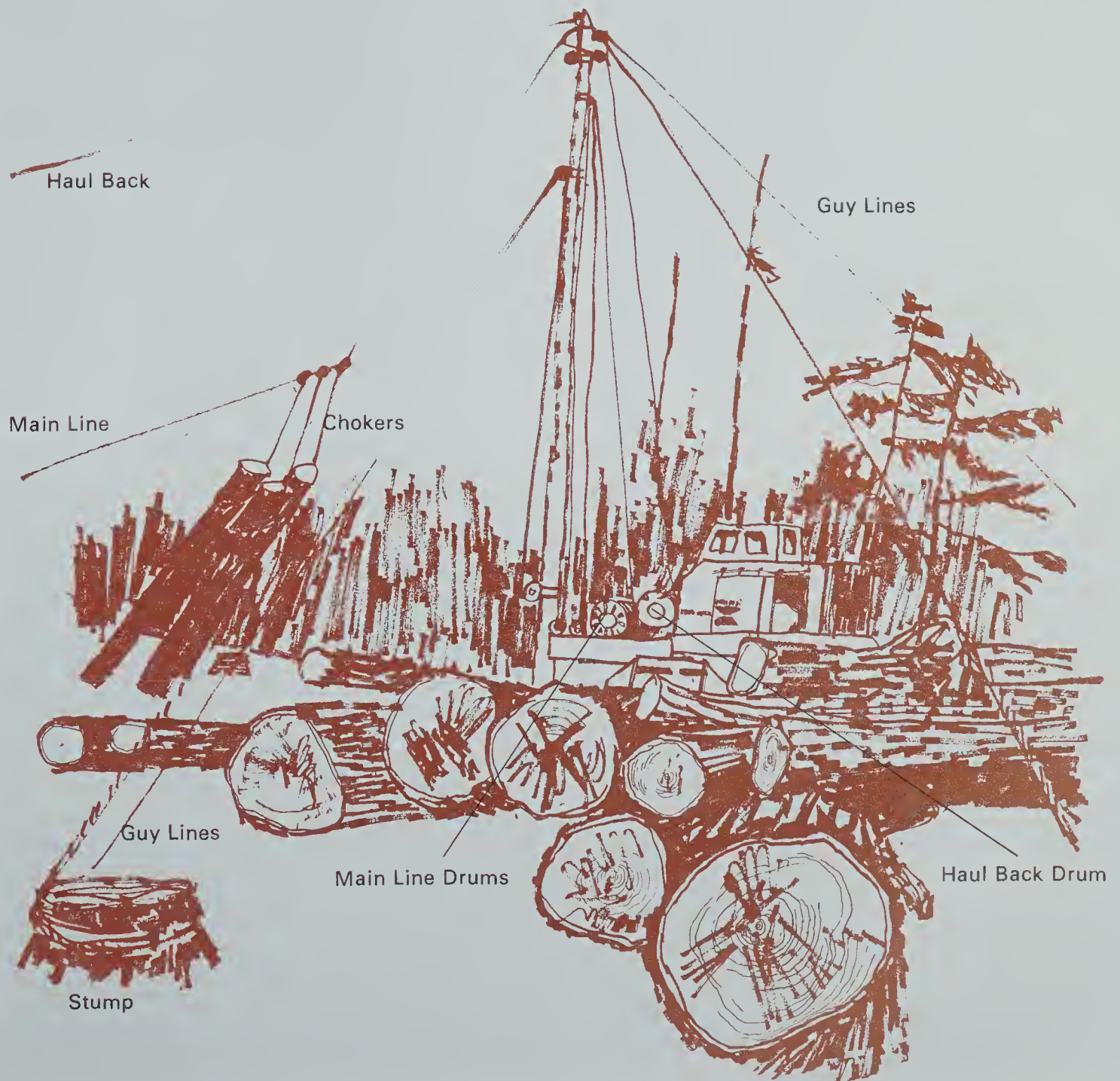




Figure 35 *The choker ready to be attached*



Figure 36 *Chokerman at work*



Figure 37 *Chokerman pulling the choker tight*



Figure 38 *Hook tender giving signal to yarder*

Figure 39



Figure 40



landing, another man pictured in Figure 39, called a *chaser* must unhook the chokers. This operation of getting trees to the landing continues until all the trees felled have been pulled in. When the felled trees have all been brought in, Mr. Stewart will direct taking down the yarder and rigging, and move on to the next setting.

One of the men in the yarding crew is the grapple operator. After the yarder operator has pulled all the cut logs into the landing, the grapple operator either loads the logs onto trucks that are waiting or piles them to be hauled later.

This hauling-in and loading goes on in a regular rhythm at the landing. The logs being hauled and loaded vary in weight all the way from one ton to fifteen tons. If you study Figure 40 carefully, you will see how the grapple works. The operator swings the grapple, hanging from the neck or boom, over a log, picks it up with the grapple, and loads it on a truck or places it in a pile to be hauled later. What else works in the same way?

The last step in this phase is branding the logs to show the location they came from. This is shown in Figure 41. Do you think this is an important step? Why?

Exercise

Using materials easily available, try to construct a simple yarder to illustrate the spar and lines. You could use string for the main line and haul-back. The operating principle is simple, so you can construct a model illustrating it. Remember, you will have to rig your model so that the chokers carry logs in to the landing. You will also have to be able to haul back the chokers for the choker-men.



Figure 41

Do you remember that earlier we said if you understand what Mr. Stewart does you will understand logging? Let's follow Mr. Stewart, now, through a typical day. This will also help you to review the main features of logging.

Outline of Mr. Stewart's Day

5:30 a.m.	Gets up, has breakfast, packs his lunch.
6:20 a.m.	Leaves for the marshalling area.
6:30-7:15 a.m.	Plans day's work with other foremen. Checks equipment. Checks with the fire warden.
7:15-4:30 p.m.	Supervises work at landing sites, keeps equipment operating, etc. Has lunch in the woods.
4:30-6:00 p.m.	Reviews day's work with other foremen.
6:00 p.m.	Goes home.

Exercise

1.

Why would Mr. Stewart look at the weather when he gets up? Why will it make a difference if it is snowing, raining or if it is windy?

2.

Why would Mr. Stewart have to take his lunch? Look back at Figure 9 to answer this question.

3.

What kind of things would Mr. Stewart have to plan with the foremen? Think of things like equipment and illness.

4.

Mr. Stewart must take care of several landing sites. What equipment would he need to do this?

5.

What sorts of things would Mr. Stewart have to review with the other foremen?

Hauling

If the logs are to be hauled immediately, the grapple operator loads them onto trucks at the same time the yarder is hauling them in. These trucks can carry 50 tons or more of logs in a single load. In coastal logging, the truck drivers haul the logs from the landing to a tidewater log dump. This often involves travelling 20 miles or more over the roads the engineers built.

Figure 42 illustrates nicely how the three machines at the landing operate together. Each machine performs its own function, but they must also work together. Make a sketch

of each machine and use labels to show the function of each.

Exercise

1.

What kinds of dangers exist at a setting? Do you think the fallers have a dangerous job? Why? Is bucking a dangerous business? How about yarding and hauling? What could go wrong with each?

2.

Does a scaler have to be accurate in his work? Why?

3.

You have looked at pictures showing modern equipment. Even so, what has remained the same about the logging operation?

4.

Since Mr. Stewart has to work closely with a number of men and crews, what kind of person do you think he should be? What kinds of things would he need to know? Must he be firm? Must he be fair? Do you think he can be both?

As the trucks begin hauling the logs away from the landing for the log dump, we reach the end of this part of the logging process, and start a new phase. Figure 43 shows the truck as it arrives at the dumping ground. This truck is going to be off-loaded at the tidewater log dump next to the pulp mill on Muchalat Inlet. Find this location on your maps.

The Final Phase

Logs on the Move

Hauling the logs from the landing to the tide-

water dump at Muchalat Inlet is the link between the woods operation and forest products industries. Some logs go to saw-mills to be cut for lumber, some logs go to pulp mills to be made into paper. Other logs will be turned into plywood and shingles.

Figure 42





Figure 43

Figure 44

We have already seen how the big trucks haul the logs from the woods to the log dumps. When the trucks arrive at the log dump they are unloaded and dumped into the water as shown in Figure 44.

Logs are moved by raft, barge, sometimes by truck and rail. From Gold River all of the logs are water-borne from the sorting ground. But before this movement takes place, the logs must be sorted by grade and by species. Figures 45, 46 and 47 show this part of the operation. In these pictures you can see the *boom men* walking on the logs to steer and push them with their steel-



Figure 45



Figure 46





Figure 47

pointed pike poles. These men wear special shoes with spikes in the soles to help them keep their footing. They are assisted by steel hulled boats that scoot about pushing the logs in front of them.

In Figures 45, 46 and 47 you can also see the booming grounds where the logs are separated. You also see the little *dozer boat* working.

As the logs are being sorted, they are scaled once more. In this case a government scaler does the measuring and tallying. In this way the government knows how much tax to charge the logging company. Look

carefully at Figures 49 and 50. What parts of the log is the government scaler measuring?

After the logs have been sorted, they are made up into *booms*. The sections are held together by big chains. Tugs then haul these booms. They sometimes tow them for as much as 500 miles.

It is important that the logs be moved quickly out of salt water. If they are left in the salt water too long, little animals called marine borers can cause very costly damage by boring into the logs. If these little animals are left time to bore, they can make the wood in a log look like the inside of a beehive.

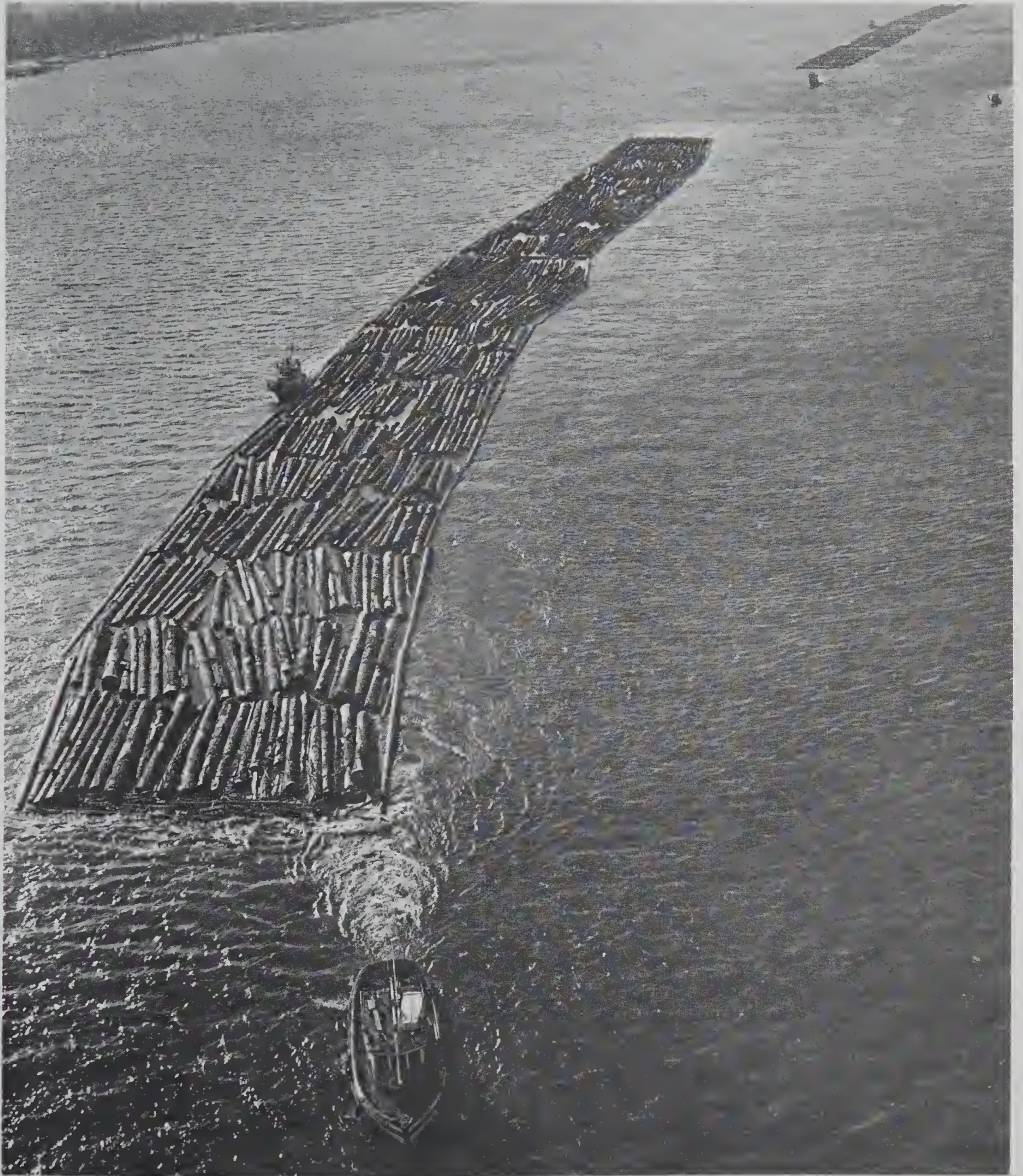


Figure 48



Figure 49

Exercise

1.

In many of the pictures where men appear they wear certain kinds of safety equipment. What does the chokerman wear? What does Mr. Stewart wear? What about Mr. Bell? What safety equipment do you see the boom men wearing? What equipment might the dozer boats need?

2.

How much training do you think the different men need who perform the different jobs we have talked about? What would the truck driver have to know? Do you think the truck drivers need to be responsible? Why?

3.

How many examples of cooperation among the men can you find?

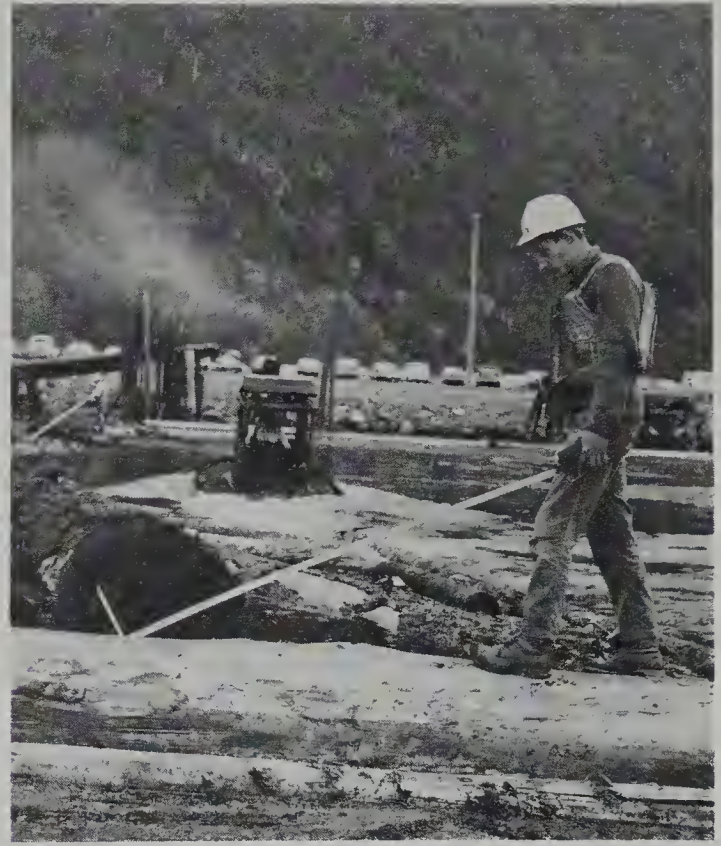


Figure 50

4.

Why do you think the species of trees are sorted from one another? Can you use any wood for any purpose?

Class Project

1.

Draw a map showing as many parts of the logging operation as you can. You could include a town where men live, the settings, the log dump, and booming grounds. You could also include locations for sawmills and pulp mills, seaports, and so on. Try to illustrate how all of these things are related to each other.

2.

The whole class could make a very large

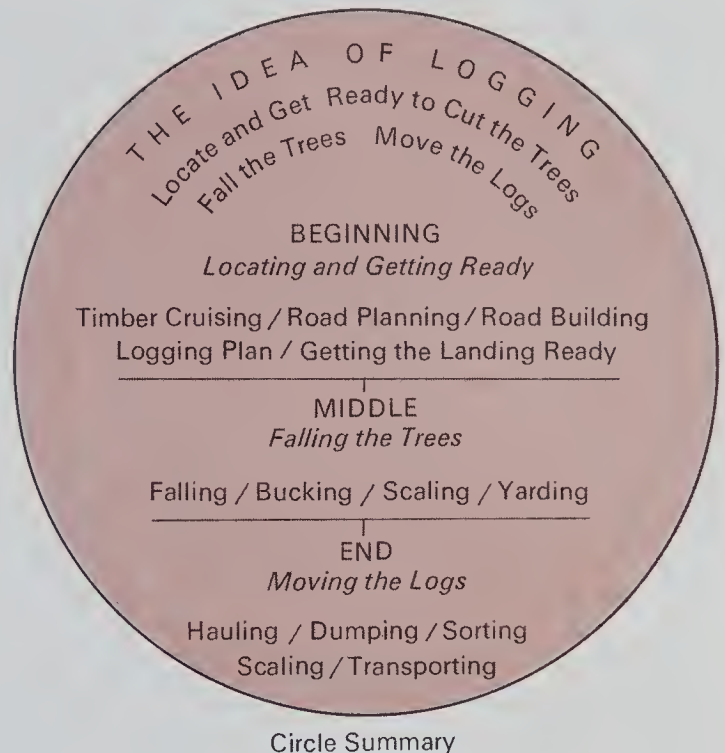
mural to show what is suggested for the map.

3.

List as many jobs as you can, and tell what each man does in the job. How are all the jobs related to each other?

Summary

This brings us to the end of our study of the logging operation. We have looked at the three phases of this process and have seen that the job of logging involves separate jobs, which must be co-ordinated. This is one of Mr. Stewart's tasks. If any part of the process fails, it might halt the whole operation.



IV: Conserving the Forests

Fire Control

One of the biggest worries for loggers and the whole forest industry is *Fire*. Every year during the fire season thousands of acres of forest burn. There is not only a money loss,

but there is also a loss in terms of wildlife, watersheds, and recreation areas.

More than one quarter of the fires in British Columbia forests are caused by

Figure 51





Figure 52

people. What are some of the ways in which this could happen? Lightning, however, causes more fires than do humans.

Logging companies often have their own men who work as fire wardens. This is the job of Mr. Gordon Daines. In Figure 51 you see Mr. Daines reading instruments that allow him to determine the fire risk or hazard. He checks the amount of moisture

present in the forest floor, he checks the wind velocity, the temperature, and the humidity. From these factors he can tell the fire hazard. What difference would each of these factors make?

In Figure 52 Mr. Daines is standing beside the Fire Hazard Rating for a particular day. What is the rating for this day? The men that work in the woods are very careful to watch



Figure 53



Figure 54

the fire hazard rating. There are times during the fire season that the forests must be closed not only to the public but even to the loggers.

The water bombers in Figures 53 and 54 are one of the modern methods of fighting fires once they start. How does it seem to work? Why could this not have been used in earlier days?

Reforestation

Forest protection from fire and disease is not the only way of trying to conserve our forests. It is also possible to grow and plant seedlings in areas where trees have been removed. Logging companies often have their own tree nursery and tree farms. A lot of experimenting is done by foresters to develop better trees. Figure 56 shows an experiment in seeding. It is hoped that trees can be grown faster and have a higher quality than trees left to nature.

Figure 57 shows Graham Stewart holding a one-year old hemlock seedling. This tree is in his backyard. You will recall that Graham is seven years old. When he is old enough to retire from working this hemlock seedling will be a large tree. It will be big enough for commercial use, but in this case, it will be providing shade for his house and backyard. In approximately 60 years, this hemlock seedling will be about 12 to 14 inches in diameter.

Exercise

1.

Write to your Provincial Forest Service and ask for information about forest fires. They will be happy to supply you with information. You can then make a detailed study of fire control and prevention.

2.

Try to visit a nursery like that shown overleaf so that you can look at different trees of different ages. Ask what difference scientific research has made to the work of the tree nursery.



Figure 55



Figure 56

Summarizing Exercise

1.

Make a list (for which you could draw pictures) to show all the ways in which logging in Mr. Stewart's day is different from logging in his father's day.

2.

While there are many differences between the old and new ways of logging, try to draw a diagram, something like a circle summary, for the "idea of logging". The basic idea of logging remains the same. It does not seem to matter whether we talk about logging in Mr. Stewart's father's day or today, nor does it seem to make a difference whether we talk about logging in the British Columbia Coastal Region or the Interior of Alberta or Ontario. The "idea of logging" is the same.

3.

Make some pictures and label them to show some important ways in which men in logging must cooperate and co-ordinate their activities. You can include ideas from all phases of logging.

4.

Make a list of some of the ways life in different geographical areas may be the same. How might they be different?

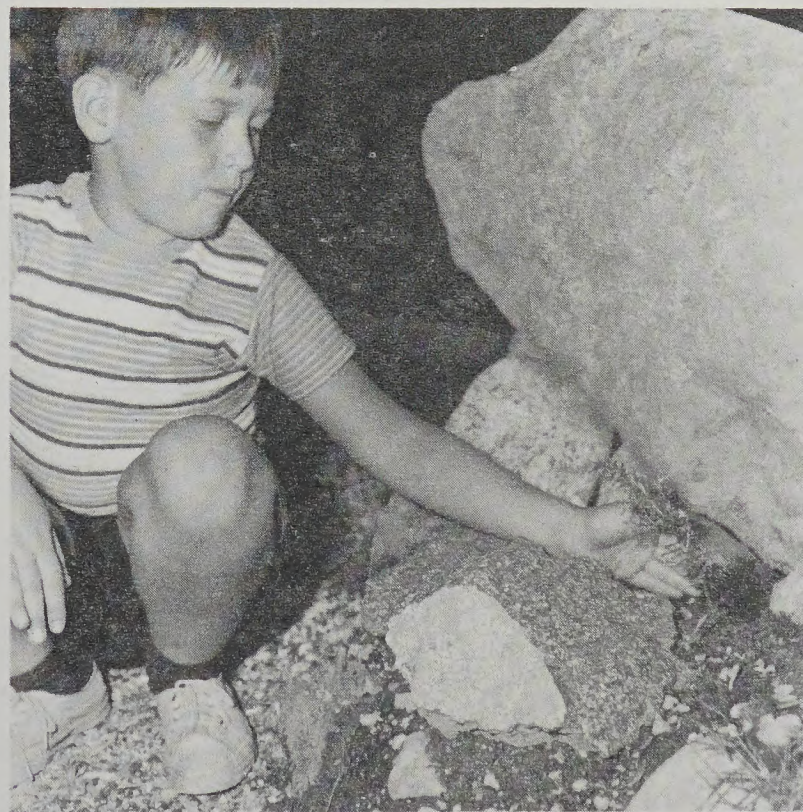
5.

Have a class discussion of the many factors that make British Columbia a good place for a lumbering industry.

6.

Now turn back to Figure 13. Imagine that you have a blind friend. Tell him everything about the logging industry for which you can now find some evidence in the picture.

Figure 57



Library Project

Use your library to find out if *Brazilian logging* is important in Canada. In what ways might it be important? Is the product more valuable than other industries? Are many men employed compared with other industries? Which province produces the most lumber? Do Canadians *earn* any income from selling forest products to other countries?

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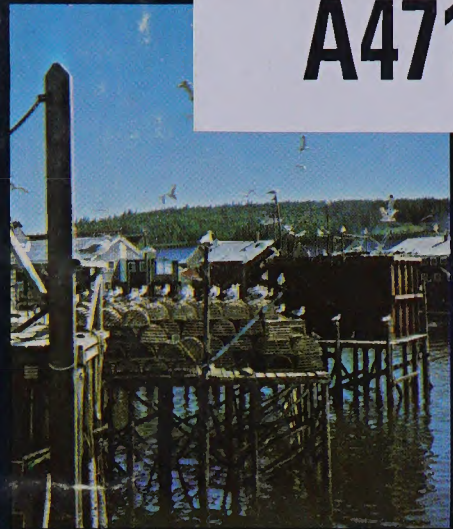
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